Homework 5

CMSY-217, Spring 2013

The source code for this assignment must be submitted using the Canvas course website prior to the start of class on Thursday, April 25.

The Social Security Administration provides a webpage (http://www.ssa.gov/OACT/babynames) with two interactive applications that allow you to display the most popular baby names for a selected year and track the popularity of a selected baby name over several years. The data are based on Social Security Card applications for years 1880 through 2011.

Popularity in 2011

Rank	Male name	Female name
1	Jacob	Sophia
2	Mason	Isabella
3	William	Emma
4	Jayden	Olivia
5	Noah	Ava
6	Michael	Emily
7	Ethan	Abigail
8	Alexander	Madison
9	Aiden	Mia
10	Daniel	Chloe

Note: Rank 1 is the most popular, rank 2 is the next most popular, and so forth.

Popularity of the female name Chloe

Year of birth	Rank
2011	10
2010	9
2009	9
2008	10
2007	16
2006	18
2005	19
2004	23
2003	24
2002	25
2001	30
2000	38
1999	63

Note: Rank 1 is the most popular, rank 2 is the next most popular, and so forth. Name data are from Social Security card applications for births that occurred in the United States.

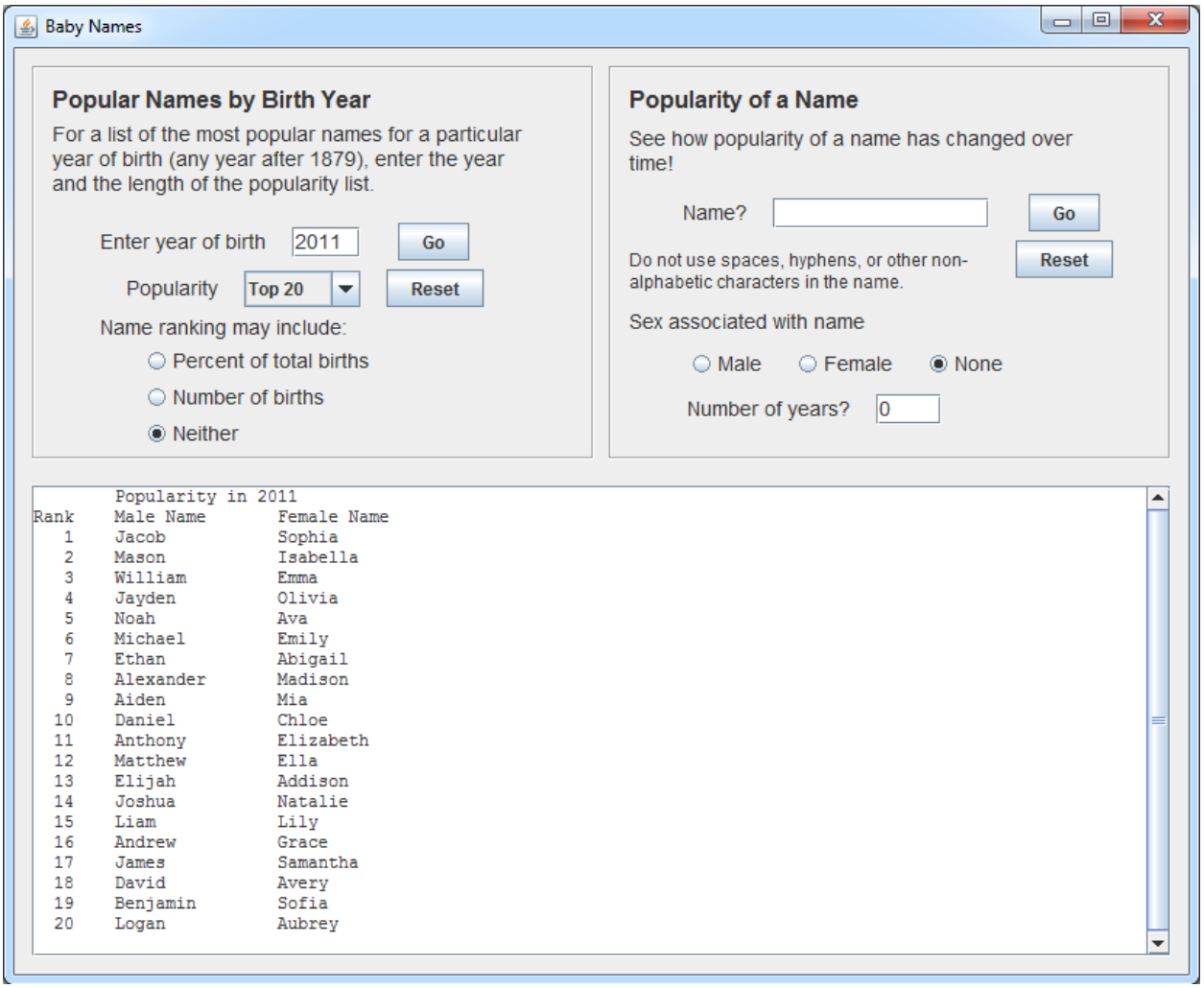
The data have been placed in a Java DB (Apache Derby) database named `babynames` with a table for each year of birth that contains columns for name, sex, and number of births. Each table is named with the letters `YOB` followed by the four-digit year for which the data was collected. For example, the table `YOB2011` contains the data for year 2011. Note that each name entry in these tables begins with a capital letter and is followed by all lowercase letters.

```
ij> DESCRIBE YOB2011;
COLUMN_NAME         |TYPE_NAME
-----------------------------
NAME                |VARCHAR
SEX                 |CHAR
NUMBER              |INTEGER
```

There is also a table called `TOTALBIRTHS` which contains the total number of births, by gender, for each year.

```
ij> DESCRIBE TOTALBIRTHS;
COLUMN_NAME         |TYPE_NAME
-----------------------------
BIRTHYEAR           |INTEGER
MALE                |INTEGER
FEMALE              |INTEGER
```

The `BabyNames` class contains a Swing application that provides you with a graphical user interface (GUI) similar in appearance to the HTML forms on the Social Security website. In addition, the event-handling code has been written so that when the user clicks the `Go` button - a `BabyNamesQuery` object is created, the input parameters are passed to the `getList` or `getRank` method, and a results `String` is returned which is displayed in the `JTextArea` at the bottom of the GUI. The following figure shows the `BabyNames` application running with the results of a `getList` method call displayed.



1. Write the `getList` method in the `BabyNamesQuery` class using JDBC to provide the same functionality as the **Popular Names by Birth Year** application on the Social Security website.

2. Write the `getRank` method in the `BabyNamesQuery` class using JDBC to provide the same functionality as the **Popularity of a Name** application on the Social Security website.

The following `SQL` statements are examples of the `String` query objects that you could pass to the `executeQuery` method of the `Statement` interface to return a `ResultSet` object. Figure 28.23 from the textbook would be a good starting point for the necessary Java code.

```
SELECT NAME
  FROM YOB2011
  WHERE SEX='M'
  ORDER BY NUMBER DESC, NAME ASC
  FETCH FIRST 20 ROWS ONLY

SELECT NAME, NUMBER
  FROM YOB2011
  WHERE SEX='M'
  ORDER BY NUMBER DESC, NAME ASC
  FETCH FIRST 20 ROWS ONLY

SELECT MALE
  FROM TOTALBIRTHS
  WHERE BIRTHYEAR=2011

SELECT NUMBER
  FROM YOB2011
  WHERE NAME='Chloe' AND SEX='F'

SELECT COUNT (NAME)
  FROM YOB2011
  WHERE SEX='F' AND NUMBER > 10917
  OR SEX='F' AND NUMBER = 10917 AND NAME<='Chloe'
```